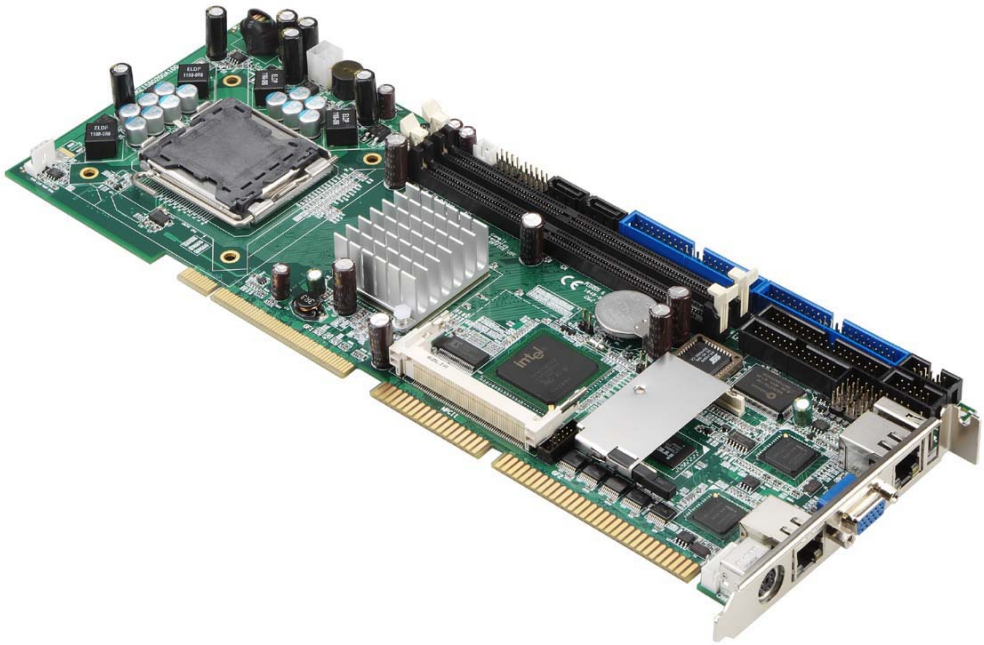
PCI-757 Series

Industrial Single Board Computer

User's Guide



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Revision	Date	Edited by	Changes
1.00	15/07/2006	JC	Initial Release
1.10	26/01/2007	JC	Correct BIOS chapter
1.20	07/08/2007	JC	Update website info, layout
1.21	10/19/2007	JC	Correct COM2 pin definition

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Safety Instructions

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Before You Begin

Before handling the PCI-757, read the instructions and safety guidelines on the following pages to prevent damage to the product and to ensure your own personal safety. Refer to the "Advisories" section in the Preface for advisory conventions used in this user's guide, including the distinction between Warnings, Cautions, Important Notes, and Notes.

- Always use caution when handling/operating a computer. Only qualified, experienced, authorized electronics service personnel should access the interior of a computer. The power supplies produce high voltages and energy hazards, which can cause bodily harm.
- Use extreme caution when installing or removing components. Refer to the installation instructions in this user's guide for precautions and procedures. If you have any questions, please contact Kontron Post-Sales Technical Support.

WARNING

High voltages are present inside the chassis when the unit's power cord is plugged into an electrical outlet. Turn off system power, turn off the power supply, and then disconnect the power cord from its source before removing the chassis cover. Turning off the system power switch does not remove power to components.

When Working Inside a Computer

Before taking covers off a computer, perform the following steps:

1) Turn off the computer and any peripherals.

2) Disconnect the computer and peripherals from their power sources or subsystems to prevent electric shock or system board damage. This does not apply when hot swapping parts.

3) Follow the guidelines provided in "Preventing Electrostatic Discharge" on the following page.

4) Disconnect any telephone or telecommunications lines from the computer.

In addition, take note of these safety guidelines when appropriate:

- To help avoid possible damage to system boards, wait five seconds after turning off the computer before removing a component, removing a system board, or disconnecting a peripheral device from the computer.

- When you disconnect a cable, pull on its connector or on its strain-relief loop, not on the cable itself. Some cables have a connector with locking tabs. If you are disconnecting this type of cable, press in on the locking tabs before disconnecting the cable. As you pull connectors apart, keep them evenly aligned to avoid bending any connector pins. Also, before connecting a cable, make sure both connectors are correctly oriented and aligned.

CAUTION

Do not attempt to service the system yourself except as explained in this user's guide. Follow installation and troubleshooting instructions closely.

Preventing Electrostatic Discharge

Static electricity can harm system boards. Perform service at an ESD workstation and follow proper ESD procedure to reduce the risk of damage to components. Kontron strongly encourages you to follow proper ESD procedure, which can include wrist straps and smocks, when servicing equipment.

You can also take the following steps to prevent damage from electrostatic discharge (ESD):

- When unpacking a static-sensitive component from its shipping carton, do not remove the component's antistatic packing material until you are ready to install the component in a computer. Just before unwrapping the antistatic packaging, be sure you are at an ESD workstation or grounded. This willl discharge any static electricity that may have built up in your body.
- When transporting a sensitive component, first place it in an antistatic container or packaging.
- Handle all sensitive components at an ESD workstation. If possible, use antistatic floor pads and workbench pads.
- Handle components and boards with care. Don't touch the components or contacts on a board. Hold a board by its edges or by its metal mounting bracket.
- Do not handle or store system boards near strong electrostatic, electromagnetic, magnetic, or radioactive fields.

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Preface

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How to Use This Guide

This guide is designed to be used as step-by-step instructions for installation, and as a reference for operation, troubleshooting, and upgrades.

Note: Driver downloads and additional information are available on our web site at *http://apac.kontron.com/index.php?id=226&cat=950&productid=1758.*

The following is a summary of the chapter contents:

- **Chapter 1, Introduction,** presents the product specifications and system architecture for the PCI-757.
- **Chapter 2, Jumpers and Connectors,** shows the definitions and locations of jumpers and connectors that you can easily configure for your system.
- **Chapter 3,System Installation,** describes how to properly mount the CPU, heatsink and main memory.
- **Chapter 4, BIOS Setup Information,** specifies the meaning of each setup parameter and describes how to get advanced BIOS performance. The POST checkpoint list provides a basic troubleshooting guide.
- **Chapter 5, Driver Installation,** provides information on installing installing the drivers for the PCI-757.
- **Appendix A**, provides **System Resources** information.

Advisory Conventions

Four types of advisories are used throughout this user's guide to provide helpful information or to alert you to the potential for hardware damage or personal injury. They are Notes, Cautions, and Warnings. The following is an example of each type of advisory. Use caution when servicing any electrical component.

Note: A note is used to make helpful information stand out.

Important: An important note indicates information that is important for you to know.

CAUTION

A CAUTION indicates potential damage to hardware and tells you how to avoid the problem.

WARNING

A WARNING indicates the potential for bodily harm and tells you how to avoid the problem.

Disclaimer: We have tried to identify all situations that may pose a warning or caution condition in this user's guide. However, Kontron does not claim to have covered all situations that might require the use of a Caution or Warning.

Unpacking

When unpacking, follow these steps:

1) After opening the box, save it and the packing material for possible future shipment.

2) Remove all items from the box. If any items listed on the purchase order are missing, notify Kontron customer service immediately.

3) Inspect the product for damage. If there is damage, notify Kontron customer service immediately. Refer to "Warranty Policy" for the return procedure.

Regulatory Compliance Statements

This section provides the FCC compliance statement for Class A devices.

FCC Compliance Statement for Class A Devices

The product(s) described in this user's guide has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the user's guide, may cause harmful interference to radio communications. Operation of this equipment in a residential area (domestic environment) is likely to cause harmful interference, in which case the user will be required to correct the interference (take adequate measures) at their own expense.

Changes or modifications not expressly approved by Kontron could void the user's authority to operate the equipment.

Note: The assembler of a personal computer system may be required to test the system and/or make necessary modifications if a system is found to cause harmful interference or to be noncompliant with the appropriate standards for its intended use.

Warranty Policy

Limited Warranty

Kontron Asia Inc.'s detailed Limited Warranty policy can be found at *http://support.kontron.com.tw/eRMA/*. Please consult your distributor for warranty verification.

The limited warranty is void if the product has been subjected to alteration, neglect, misuse, or abuse; if any repairs have been attempted by anyone other than Kontron or its authorized agent; or if the failure is caused by accident, acts of God, or other causes beyond the control of Kontron or the manufacturer. Neglect, misuse, and abuse shall include any installation, operation, or maintenance of the product other than in accordance with the user's guide.

No agent, dealer, distributor, service company, or other party is authorized to change, modify, or extend the terms of this Limited Warranty in any manner whatsoever. Kontron reserves the right to make changes or improvements in any product without incurring any obligation to similarly alter products previously purchased.

Return Procedure

For any Limited Warranty return, please contact Kontron Customer Service at *http://support.kontron.com.tw/eRMA/* and login to obtain a Return Material Authorization (RMA) Number. If you do not have an account, send an email to *support@kontron.com.tw* to apply for one.

All product(s) returned to Kontron for service or credit **must** be accompanied by a Return Material Authorization (RMA) Number. Freight on all returned items **must** be prepaid by the customer who is responsible for any loss or damage caused by common carrier in transit. Returns for Warranty **must** include a Failure Report for each unit, by serial number(s), as well as a copy of the original invoice showing the date of purchase.

To reduce risk of damage, returns of product must be in a Kontron shipping container. If the original container has been lost or damaged, new shipping containers may be obtained from Kontron Customer Service at a nominal cost.

Kontron owns all parts removed from repaired products. Kontron uses new and reconditioned parts made by various manufacturers in performing warranty repairs and building replacement products. If Kontron repairs or replaces a product, its warranty term is not extended.

Shipments not in compliance with this Limited Warranty Return Policy will not be accepted by Kontron.

Limitation of Liability

In no event shall Kontron be liable for any defect in hardware, software, loss, or inadequacy of data of any kind, or for any direct, indirect, incidental, or consequential damages in connection with or arising out of the performance or use of any product furnished hereunder. Kontron's liability shall in no event exceed the purchase price of the product purchased hereunder. The foregoing limitation of liability shall be equally applicable to any service provided by Kontron or its authorized agent.

Maintaining Your Computer

Cleaning Components

Internal fans cool the computer by drawing in air through air vents in the front of the computer and blowing it out the rear-side panels. Dust and other debris is drawn in with the air and, if allowed to build up, will interfere with the operation of various system components and insulate components, preventing heat from dissipating. To prevent this, an air filter has been installed in front of the air vents in the front panel to block dust and other debris from entering the computer.

Dust and debris builds up on the air filter over time. When the air filter becomes very dirty, it is difficult for cooling air to pass through the air filter and enter the computer. So, the air filter must be cleaned to prevent the computer from overheating. Remove and clean the air filter on a regular basis following the steps described in the "Air Filter" section of Chapter 2. Also, regularly vacuum the exterior of the chassis to remove dust that has accumulated around the air vents.

Environmental Factors

Temperature

The ambient temperature within an enclosure may be greater than room ambient temperature. Installation in an enclosure should be such that the amount of air flow required for safe operation is not compromised. Consideration should be given to the maximum rated ambient temperature. Overheating can cause a variety of problems, including premature aging and failure of chips or mechanical failure of devices.

If the system has been exposed to abnormally cold temperatures, allow a two-hour warm-up period to bring it up to normal operating temperature before turning it on. Failure to do so may cause damage to internal components, particularly the hard disk drive.

Humidity

High-humidity can cause moisture to enter and accumulate in the system. This moisture can cause corrosion of internal components and degrade such properties as electrical resistance and thermal conductivity. Extreme moisture buildup inside the system can result in electrical shorts, which can cause serious damage to the system.

Buildings in which climate is controlled usually maintain an acceptable level of humidity for system equipment. However, if a system is located in an unusually humid location, a dehumidifier can be used to maintain the humidity within an acceptable range. Refer to the "Specifications" section of this user's guide for the operating and storage humidity specifications.

Altitude

Operating a system at a high altitude (low pressure) reduces the efficiency of the cooling fans to cool the system. This can cause electrical problems related to arcing and corona effects. This condition can also cause sealed components with internal pressure, such as electrolytic capacitors, to fail or perform at reduced efficiency.

Power Protection

The greatest threats to a system's supply of power are power loss, power spikes, and power surges caused by electrical storms, which interrupt system operation and/or damage system components. To protect your system, always properly ground power cables and one of the following devices.

Surge Protector

Surge protectors are available in a variety of types and usually provide a level of protection proportional with the cost of the device. Surge protectors prevent voltage spikes from entering a system through the AC power cord. Surge protectors, however, do not offer protection against brownouts, which occur when the voltage drops more than 20 percent below the normal AC line voltage level.

Line Conditioner

Line conditioners go beyond the overvoltage protection of surge protectors. Line conditioners keep a system's AC power source voltage at a fairly constant level and, therefore, can handle brownouts. Because of this added protection, line conditioners cost more than surge protectors. However, line conditioners cannot protect against a complete loss of power.

Uninterruptible Power Supply

Uninterruptible power supply (UPS) systems offer the most complete protection against variations on power because they use battery power to keep the server running when AC power is lost. The battery is charged by the AC power while it is available, so when AC power is lost, the battery can provide power to the system for a limited amount of time, depending on the UPS system.

UPS systems range in price from a few hundred dollars to several thousand dollars, with the more expensive unit s allowing you to run larger systems for a longer period of time when AC power is lost. UPS systems that provide only 5 minutes of battery power let you conduct an orderly shutdown of the system, but are not intended to provide continued operation. Surge protectors should be used with all UPS systems, and the UPS system should be Underwriters Laboratories (UL) safety approved.

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Chapter 1

Introduction

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Overview

The PCI-757 Series is a full-size PICMG 1.0 form factor single-processor system host board based on the Intel® 865G chipset with ICH5 I/O Controller Hub. It features the 90nm process Intel® Pentium® 4 Processor with Hyper-Threading Technology on the LGA775 socket, 800MHz Front Side Bus, up to 2MB L2 cache, and supports 2 DIMMs of Dual Channel DDR333/400 up to a maximum of 2GB. The Intel® Extreme Graphics 2 technology, SATA 1.5Gb/s, Gigabit Ethernet, and USB 2.0 round out the package for a powerful rack-mount or wall-mount system.

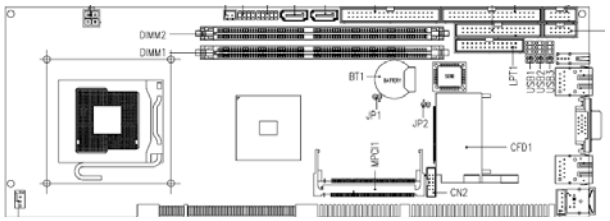
I/O features of the PCI-757 include a 32-bit/33MHz PCI Bus, Gigabit and Fast Ethernet (GbE n/a on PCI-757VL), EIDE Ultra ATA/100, 2 Channels SATA 1.5Gb/s, Mini PCI & CompactFlash slots (n/a on PCI-757VL), UART compatible serial ports, parallel port, floppy drive port, PS/2 Keyboard port and VGA at 2048x1536 at 75Hz resolution.

Checklist

1. Take out the PCI-757 series unit from the carton box, check if the unit is properly secure in the plastic bag.

2. Check the contents of the carton box:

- PICMG 1.0 Single Board Computer



- ATA-66/100 HDD ribbon cable x2
- Floppy ribbon cable x1
- SATA cable x1
- USB 2.0 4-port PCI bracket and cable
- COM 1-port PCI bracket and cable
- Keyboard/Mouse Y-cable

If any of these items is damaged or missing, please contact Kontron. Save all packing materials for future replacement and maintenance.

Features

Processor

The PCI-757 supports a single 90nm process Intel® Pentium® 4 Processor with Hyper-Threading Technology, on a LGA775 socket with up to 800 MHz front side bus.

Chipset

The PCI-757 is based on the **Intel® 865G GMCH** and **Intel® I/O Controller Hub 5 ICH5** chipset.

The **Intel® 865G GMCH** provides:

- Support for Intel® Pentium® 4 Processor with Hyper-Threading Technology or Celeron® D
- 800/533/400 MHz system bus
- Support for Dual Channel DDR400/333 memory, up to 2 GB
- Intel® Extreme Graphics 2 provides resolution up to 2048 x 1536 at 75Hz
- Hub Interface 1.5 electrical/transfer protocol, 266 MB/s point-to-point connection to ICH5
- Package: 37.5 mm × 37.5 mm 932-pin Flip Chip Ball Grid Array (FCBGA)

The **Intel® I/O Controller Hub 5 ICH5** provides:

- PCI Local Bus Specification, Rev. 2.2 compliant with support for 33MHz PCI operations
- ACPI Power Management Logic Support
- Enhanced DMA controller
- Integrated Serial ATA host controller with independent DMA operations on two ports
- Integrated IDE controller supports Ultra ATA 100/66/33
- USB host interface with support for 7 USB ports; four UHCI host controllers; one EHCI high-speed USB 2.0 Host controller
- SMBus Specification, Ver. 2.0 with additional support for I2C devices
- Supports AC '97, Rev. 2.3 Specifications
- Low Pin Count (LPC) interface
- Firmware Hub (FWH) interface support
- Package: 31mm x 31mm, 460 pin mBGA

BIOS

Award Plug & Play FWH BIOS – 4Mb ROM

Onboard Gigabit/Fast Ethernet Controllers

The PCI-757 provides one Gigabit Ethernet interface via an Intel 82541PI Gigabit Ethernet Controller and one Fast Ethernet interface via an Intel 82562EZ Fast Ethernet Controller (GbE n/a on PCI-757VL).

I/O Control

The Winbond W83627HG Super I/O provides the following functionality

- Two UART serial ports (one UART supports RS232/422/485 interface, jumperless by BIOS selection), parallel port, floppy drive port, PS/2 keyboard/mouse interface
- Watchdog Timer: 1 to 255 step, (sec/min), software programmable
- Hardware Monitor: The W83627HG Super I/O provides temperature, fans, and voltage monitor. It has analog-to-digital converters that allow software to monitor the voltages on the PCI-757:
  - CPU Vcore
  - +1.5V
  - +3.3V
  - +12V
  - + 5V
  - +5VSB
  - +VBAT
  - CPU temp
  - CPU Fan

Product Specifications

Specifications	■Full-size PICMG 1.0 Single Board Computer ■PCI Local Bus Specification, Rev 2.2 compliant
Processors	■Single Processor with Intel® Land Grid Array 775 (LGA775) package ■Intel® Pentium® 4 Processor (Series 5/6, 805, 820), Celeron® D ■up to 2MB L2 cache ■400/533/800MHz Front Side Bus ■Auto-selection of CPU frequency and core voltage ■Intel Hyper-Threading Technology supported
Chipsets	■Intel® 865G Graphic Memory Controller Hub (GMCH) ■Intel® I/O Controller Hub 5 (ICH5)
BIOS	■Support for 4 Mb Firmware Hub. ■BIOS write protection provides anti-virus capability ■DMI BIOS Support ■Supports system soft power-off (via ATX power supply) ■Supports PXE Remote Boot
System Memory	■Dual Channel DDR 333/400MHz ■2 DIMM slots, maximum 2GB system memory
Graphics	■GMCH analog RGB output on rear bracket ■Resolution up to 2048 x 1536 at 75Hz
Form Factor	■PICMG 1.0 Full-size Single Board Computer ■Dimensions: 338.6mm (L) x 122mm (W) (13.33”x4.8”)
PCI Support	■PCI Golden Fingers ■Mini PCI card slot (n/a on PCI-757VL)
Bus on PICMG 1.0	■Supports ISA Interface (no high-drive on PCI-757VL) ■ I/O, IRQ, DMA & bus master ■Supports one PCI bus (32-bit at 33MHz)
Clock Generator	■Integrated Circuit Systems ICS952607 (CK410)
I/O Controller	■W83627HG LPC Super I/O controller
On-board LAN	■Onboard Gigabit + Fast Ethernet (i82541PI + i82562EZ) ■2 RJ-45 ports on rear bracket (PCI-757VL: 1x Fast Ethernet only)
Peripheral Support	■Two IDE channels support Ultra ATA 100/66/33 ■1x CompactFlash I/II port via Secondary IDE (n/a on PCI-757VL) ■Supports 2 Channels SATA 1.5 Gb/s ■Supports 7 ports USB v2.0 (one on bracket, 6 internal) ■1x Mini PCI card slot (n/a on PCI-757VL) ■2x 16550 UART compatible serial ports with ESD protection (RS232/422/485 on COM2) ■1x internal bi-direction parallel port with SPP/ECP/EPP mode ■1x internal Floppy port ■KB/MS on rear bracket, internal PS/2 Keyboard
Watchdog Timer	■1-255 step (sec/min), can be set with software on Super I/O
Miscellaneous	■Voltage, fan and CPU temperature monitoring

Table 1-1. PCI-757 Specifications

System Block Diagram

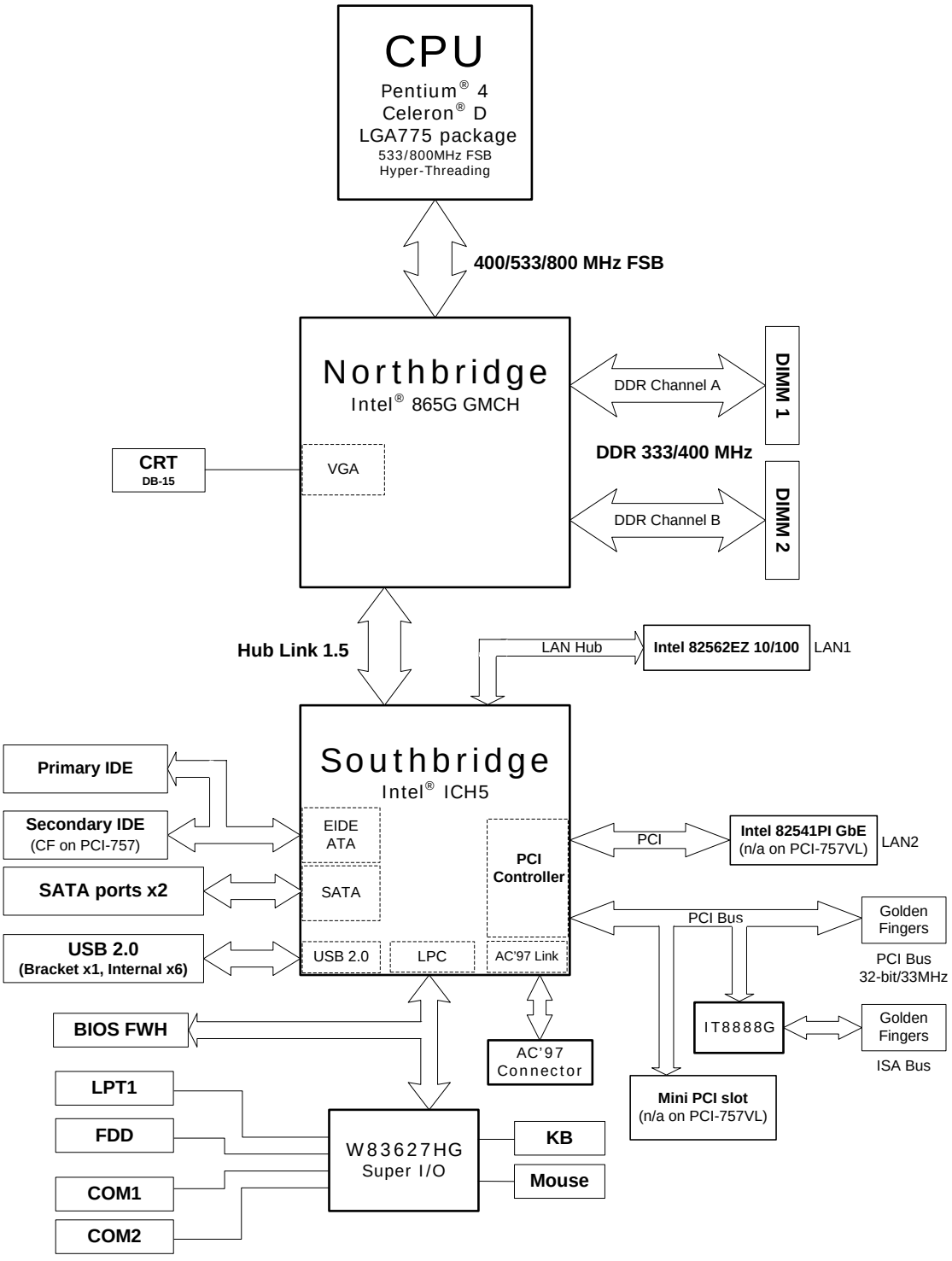


Figure 1-1. PCI-757 System Block Diagram

Mechanical Dimensions

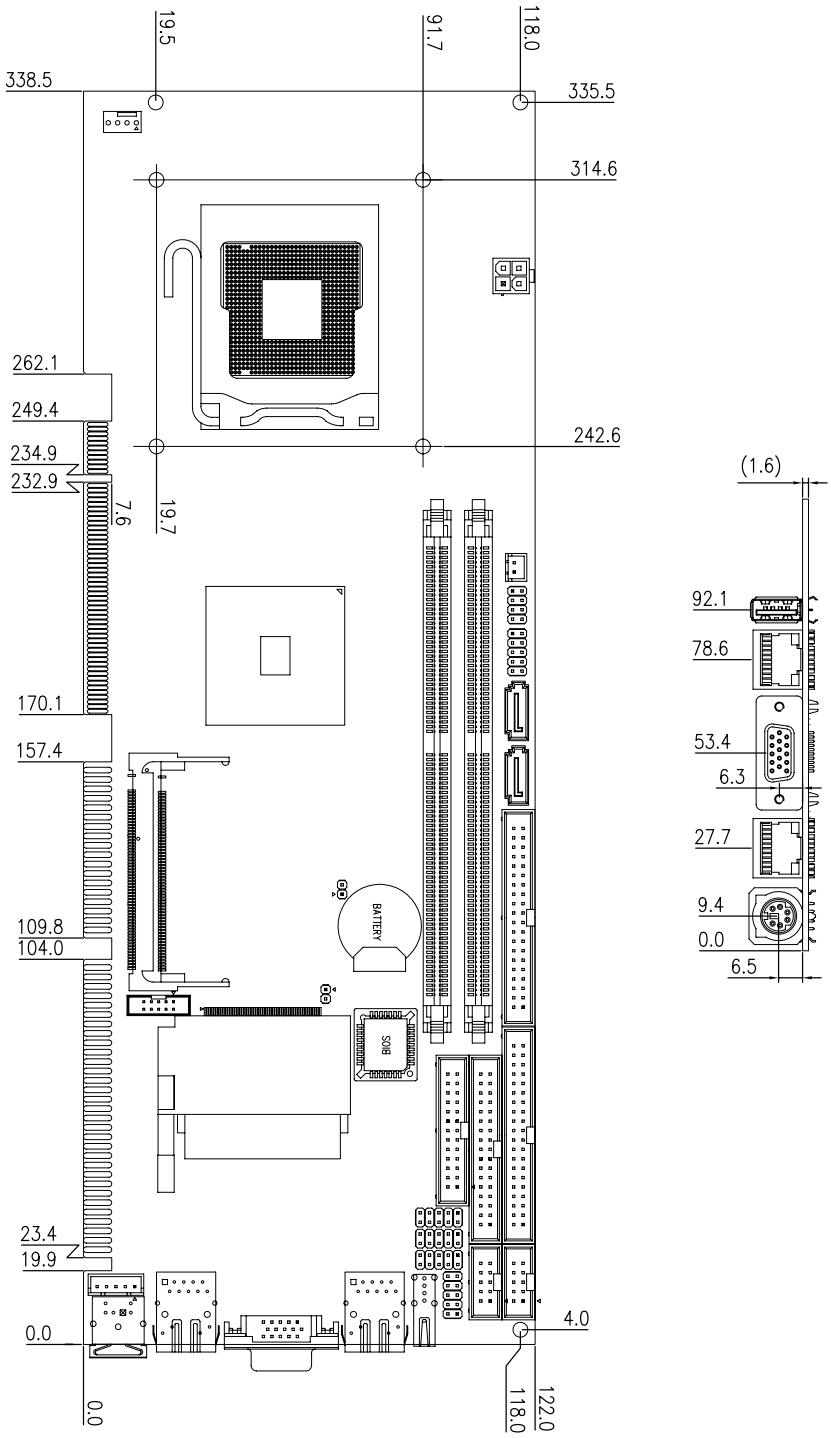


Figure 1-2. PCI-757 Mechanical Dimensions

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Chapter 2

Hardware Settings

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Overview

This chapter provides the definitions and locations of jumpers, headers, and connectors.

Jumpers

The PCI-757 has several jumpers which must be properly configured to ensure correct operation.)

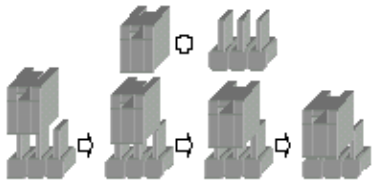


Figure 2-1. Jumper Connector

For a three-pin jumper (see Figure 2-1), the jumper setting is designated "1-2" when the jumper connects pins 1 and 2. The jumper setting is designated "2-3" when pins 2 and 3 are connected and so on. You will see that one of the lines surrounding a jumper pin is thick, which indicates pin No.1.

To move a jumper from one position to another, use needle-nose pliers or tweezers to pull the pin cap off the pins and move it to the desired position.

Jumper Settings and Pin Definitions

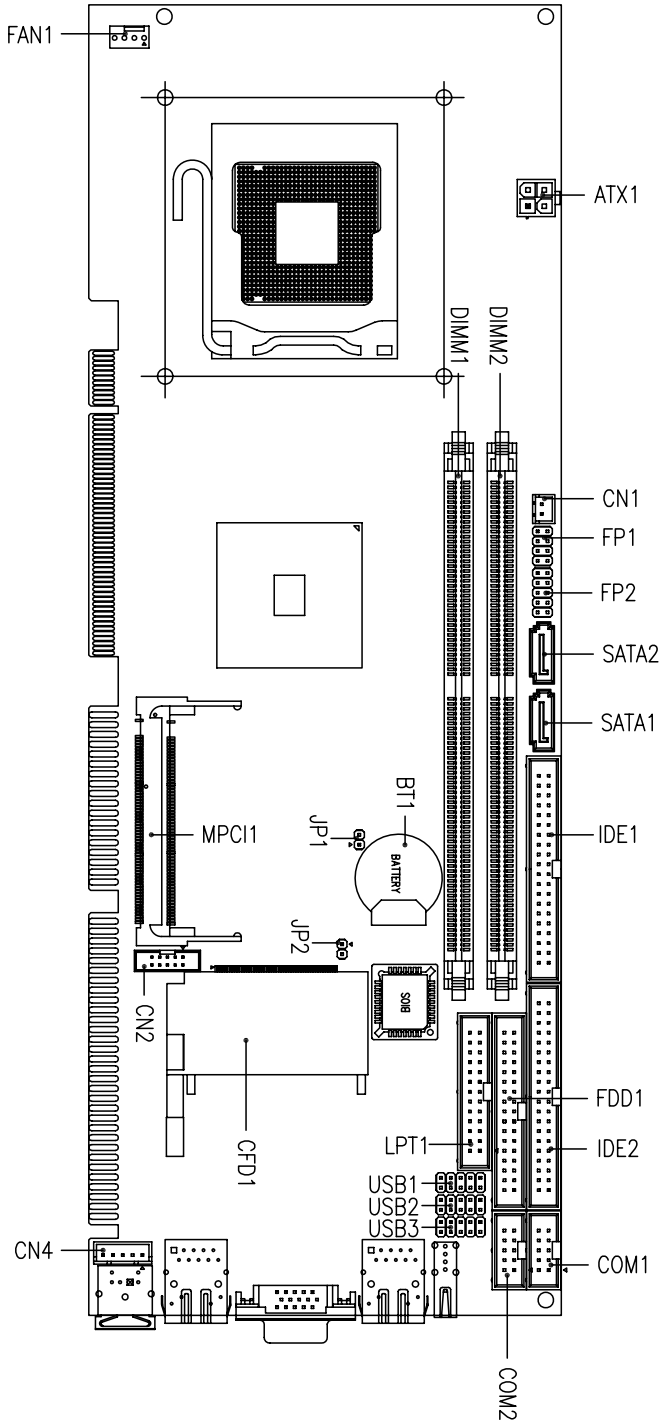


Figure 2-2. Jumper and Connector Locations

Jumper Settings

Use the information in the following tables to change the jumpers.

Jumper	Function
JP1	Clear CMOS
JP2	CF Card Master/Slave Select

Table 2-1. Jumper Location Description

To ensure the correct configuration, the following describes how to set the jumpers to enable/disable or change functions. For jumper locations please refer to jumper location diagram.

Clear CMOS Setting (JP1: 2-pin 2.54mm pitch header)

Function	JP1
Normal (Default)	1-2 Open
Clear CMOS	1-2 Shorted

Table 2-2. Clear CMOS setting

CF Card Master/Slave Select (JP2: 2-pin 2.54mm pitch header)

Function	JP2
Master (Default)	1-2 Open
Slave	1-2 Shorted

Table 2-3. CF Card Master/Slave select

Main Board Pin Assignments

Connector	Function
ATX1	ATX Power_12V Connector
CFD1	CompactFlash Socket
CN1	ATX Power Control Connector
CN2	AC97 Connector
CN4	Internal Keyboard Connector
COM1	RS-232 Serial Port Connector
COM2	RS-232/422/485 Serial Port Connector
FAN1	CPU Fan Connector
FDD1	Floppy Connector
FP1	Front Panel 1 Connector (Reset/ HD Led/ Speaker/)
FP2	Front Panel 2 Connector (P_LED/ P_BT /KB_Lock/SMB)
IDE1-2	EIDE Connector
LPT1	LPT Port Connector
SATA1-2	Serial ATA Connector
USB1-3	USB Connector
DIMM1	184 Pin DDR DIMM Socket Channel A
DIMM2	184 Pin DDR DIMM Socket Channel B
MPCI1	Mini PCI Socket

Table 2-4. PCI-757 Main Board Connector Descriptions

ATX Power_12V Connector (ATX1: 2x2 pin female):

PIN	SIGNAL	PIN	SIGNAL
1	Ground	3	+12V
2	Ground	4	+12V

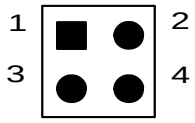
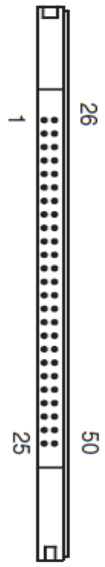


Table 2-5. ATX Power_12V Connector

CompactFlash slot (CFD1):

PIN	SIGNAL	PIN	SIGNAL
1	GND	2	D3
3	D4	4	D5
5	D6	6	D7
7	CS0#	8	A10
9	ATASEL#	10	A9
11	A8	12	A7
13	VCC	14	A6
15	A5	16	A4
17	A3	18	A2
19	A1	20	A0
21	D0	22	D1
23	D2	24	IOCS16#
25	CD2	26	CD1
27	D11	28	D12
29	D13	30	D14
31	D15	32	CS1#
33	VS1	34	IORD#
35	IOWR#	36	WE#
37	INTRQ	38	VCC
39	CSEL#	40	VS2#
41	RESSET#	42	IORDY
43	INPACK#	44	REG#
45	DASP#	46	PDIAG#
47	D8	48	D9
49	D10	50	GND



Note: Compact Flash n/a on PCI-757VL

Table 2-6. CompactFlash Slot pin definition

ATX Power Control Connector (CN1: Wafer 2-pin M 2.54mm):

PIN	SIGNAL
1	PS-ON
2	+5VSB

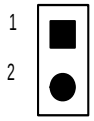


Table 2-7. ATX Power Control Connector

AC'97 Connector (CN2: Wafer Box 5x2 pin M 2.0mm):

PIN	SIGNAL	PIN	SIGNAL
1	AC_RST-	2	AC_SYNC
3	GND	4	AC_DAOUT
5	AC_DAIN2	6	GND
7	GND	8	AC_BCLK
9	+5V	10	+3.3V

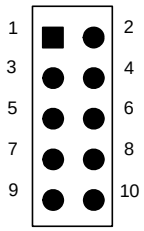


Table 2-8. AC'97 Connector

Internal Keyboard Connector (CN4: Wafer 5-pin male):

PIN	SIGNAL
1	KB Clock
2	KB Data
3	N.C
4	GND
5	VCC

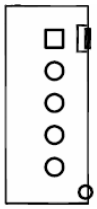


Table 2-9. Internal Keyboard Connector

RS232 Serial Port Header (COM1: 5x2 box header 2.54mm pitch)

PIN	SIGNAL	PIN	SIGNAL
1	DCD	2	RXD
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI	10	N.C.

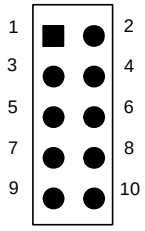


Table 2-10. RS232 Serial Port Header

RS232/422/485 Serial Port Header (COM2: 5x2 box header 2.54mm pitch)

PIN	SIGNAL	PIN	SIGNAL
1	DCD(422TXD+/485DATA+)	2	RXD (422RXD+)
3	TXD(422TXD-/485DATA-)	4	DTR (422RXD-)
5	GND	6	DSR
7	RTS	8	CTS
9	RI	10	NC

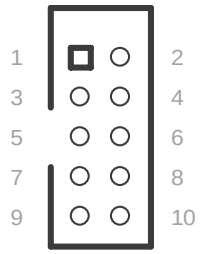


Table 2-11. RS232/422/485 Serial Port Header

CPU Fan Connector (Fan1: Wafer 4-pin male 2.5mm pitch)

PIN	SIGNAL
1	GND
2	+12V
3	Speed Sense
4	Speed Control

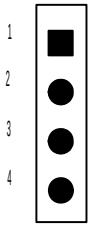


Table 2-12. CPU Fan Connector

Floppy Connector (FDD1: 17x2 box header 2.54mm pitch)

PIN	SIGNAL	PIN	SIGNAL
1	GND	2	#REDWC (#DENSITYSEL)
3	GND	4	N.C
5	GND	6	#DS1
7	GND	8	#INDEX
9	GND	10	#MOTOR A
11	GND	12	#DRIVE SELECT B
13	GND	14	#DRIVE SELECT A
15	GND	16	#MOTOR B
17	GND	18	#DIR
19	GND	20	#STEP
21	GND	22	#WRITE DATA
23	GND	24	#WRITE GATE
25	GND	26	#TRACK0
27	GND	28	#WRITE PROTECT
29	GND	30	#READ DATA
31	GND	32	#SIDE1(#HEADSEL)
33	GND	34	#DISK CHANGE

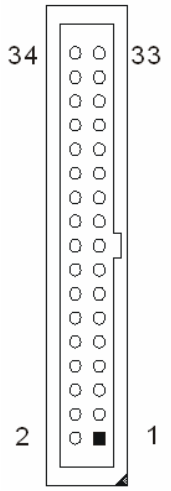
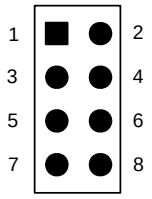


Table 2-13. Floppy Connector

➤ *Front Panel 1 Connector (FP1: 4x2-pin 2.54mm pitch):*

PIN	SIGNAL	PIN	SIGNAL
1	Reset Switch (+)	2	External Speaker (+)
3	Reset Switch (-)	4	NC
5	IDE LED (+)	6	Internal Speaker
7	IDE LED (-)	8	External Speaker (-)



Pins 2, 8: External Speaker wire
Pins 6-8 shorted: Internal Speaker Enable (default)

Table 2-14. Front Panel 1 Connector pin definition

➤ *Front Panel 2 Connector (FP2: 5x2-pin 2.54mm pitch):*

PIN	SIGNAL	PIN	SIGNAL
1	Power LED (+)	2	Power On Button (+)
3	NC	4	Power On Button (-)
5	Power LED (-)	6	NC
7	KeyBoard Lock (+)	8	I2C Bus SMB Data
9	GND	10	I2C Bus SMB Clock

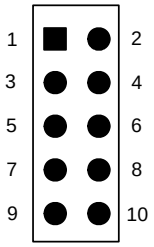


Table 2-15. Front Panel 2 Connector pin definition

EIDE Connector (IDE1: 20x2 box header 2.54mm pitch)

PIN	SIGNAL	PIN	SIGNAL
1	IDE RESET	2	GND
3	DATA7	4	DATA8
5	DATA6	6	DATA9
7	DATA5	8	DATA10
9	DATA4	10	DATA11
11	DATA3	12	DATA12
13	DATA2	14	DATA13
15	DATA1	16	DATA14
17	DATA0	18	DATA15
19	GND	20	N.C
21	REQ	22	GND
23	IO WRITE	24	GND
25	IO READ	26	GND
27	IO READY	28	GND
29	DACK	30	GND
31	IRQ14	32	N.C
33	ADDR1	34	UDMA DETECT
35	ADDR0	36	ADDR2
37	CS#1	38	CS#3
39	LED	40	GND

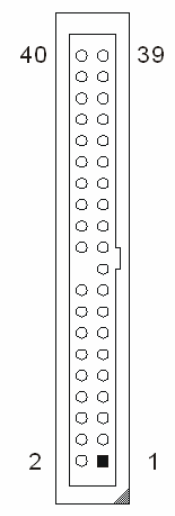


Table 2-16. EIDE Connector

LPT Port Connector (LPT1: 13x2 box header 2.54mm pitch)

PIN	SIGNAL	PIN	SIGNAL
1	Line Printer Strobe	14	Auto Feed
2	PD 0, Parallel Data 0	15	Error
3	PD 1, Parallel Data 1	16	Initialize
4	PD 2, Parallel Data 2	17	Select
5	PD 3, Parallel Data 3	18	Ground
6	PD 4, Parallel Data 4	19	Ground
7	PD 5, Parallel Data 5	20	Ground
8	PD 6, Parallel Data 6	21	Ground
9	PD 7, Parallel Data 7	22	Ground
10	ACK, Acknowledge	23	Ground
11	Busy	24	Ground
12	Paper Empty	25	Ground
13	Select		

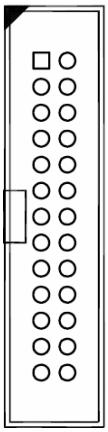


Table 2-17. LPT Port Connector

➤ *Serial ATA Connector (SATA1-4: 7-pin "L" type)*

PIN	SIGNAL	PIN	SIGNAL
1	GND	2	SATA_TXP
3	SATA_TXN	4	GND
5	SATA_RXN	6	SATA_RXP
7	GND		

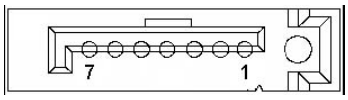


Table 2-18. Serial ATA Connector

➤ *USB Headers (USB1-3: 5x2-pin header 2.54mm pitch)*

PIN	SIGNAL	PIN	SIGNAL
1	+5V	2	+5V
3	USBD1-	4	USBD2-
5	USBD1+	6	USBD2+
7	GND	8	GND
9	“key”	10	GND

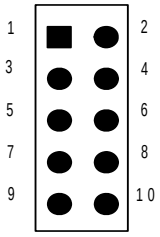


Table 2-19. USB0-7 Headers

Rear Panel Pin Assignments

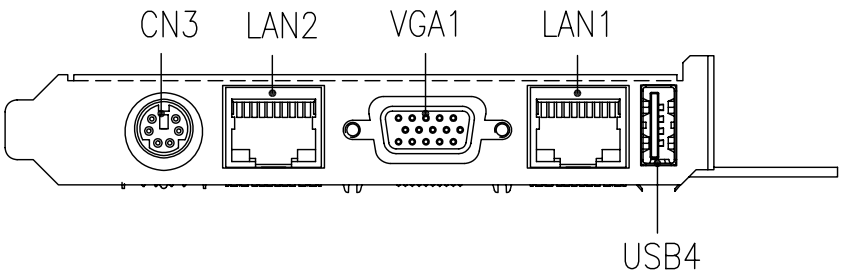


Figure 2-3. Rear Panel connector locations

Connector	Function
CN3	PS2 Mouse / Keyboard Connector
LAN1-2	Gigabit/Fast Ethernet Connectors
USB4	USB Type-A Connector
VGA1	VGA Display Connector

Table 2-20. PCI-757 Rear Panel Connector Descriptions

Keyboard/Mouse Connector (CN3: 6-pin purple DIN)

PIN	SIGNAL	PIN	SIGNAL
1	Keyboard data	2	Mouse data
3	Ground	4	+5V
5	Keyboard clock	6	Mouse clock

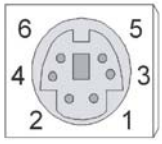


Table 2-21. Keyboard/Mouse Connector

Fast Ethernet Connector (LAN1: RJ-45)

PIN	SIGNAL	PIN	SIGNAL
1	Transmit output (+)	5	NC
2	Transmit output (-)	6	Receive input (-)
3	Receive input (+)	7	NC
4	NC	8	NC

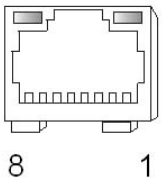
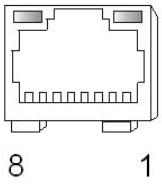


Table 2-22. LAN1 Fast Ethernet Connector

Gigabit Ethernet Connector (LAN2: RJ-45)

PIN	SIGNAL	PIN	SIGNAL
1	MDI 0+	2	MDI 0-
3	MDI 1+	4	MDI 1-
5	MDI 2+	6	MDI 2-
7	MDI 3+	8	MDI 3-



LAN LED	Function
Yellow	LINK / ACTIVE
OFF / Green / Orange	Speed 10 / Speed 100 / Speed 1000

Note: GbE n/a on PCI-757VL

Table 2-23. LAN2 Gigabit Ethernet Connector

USB Connector (USB4: 4-pin Type A female)

PIN	SIGNAL
1	VCC
2	USB -
3	USB +
4	GND

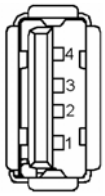


Table 2-24. USB5 Connector

VGA Display Connector (VGA1: D-Sub 15-pin female)

PIN	SIGNAL	PIN	SIGNAL
1	Red	2	Green
3	Blue	4	NC
5	Ground	6	Ground
7	Ground	8	Ground
9	VCC	10	Ground
11	NC	12	DDCData
13	HSync	14	VSync
15	DDCClk		

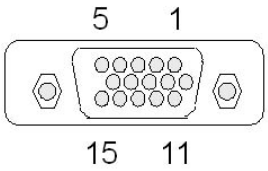


Table 2-25. VGA Display Connector

Chapter 3

System Installation

Contents

Overview 3-3
Processor Installation 3-3
- Processor Handling 3-3
- Installing the CPU 3-3
- Removing the CPU 3-5
- Heatsink Installation 3-6

Memory Module Installation 3-7
- Installing a DIMM 3-7
- Removing a DIMM 3-8
- Memory Configuration for Dual Channel Mode 3-8

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Overview

This chapter describes how to set up your system and add processors and memory.

Processor Installation

Processor Handling

Carefully follow the steps below in order to prepare the CPU for installation:

1) Remove processor from packaging.

2) Visually inspect to ensure processor protective cover is present and properly secured.

3) Handle the CPU by grasping the substrate edges only with thumb and forefinger.

CAUTION

DO NOT TOUCH PROCESSOR CONTACTS TO PREVENT DAMAGING THE CPU.

4) Remove protective cover with the opposite hand by depressing larger retention tab and peeling the cover away.

5) Set and reserve the protective cover aside. Always keep the protective side cover on the processor when not in the socket.

Installing the CPU

Carefully follow the steps below in order to install the CPU:

1) Check and confirm that you are installing the correct CPU type.

2) Align the gold triangle with the corner of the socket nearest the Load Lever that is trimmed at a 45 degree angle (see Figure 3-1). Carefully place the CPU into the socket body using a purely vertical motion. (Tilting the processor into place or shifting it into place on the socket can damage the sensitive socket contacts.)

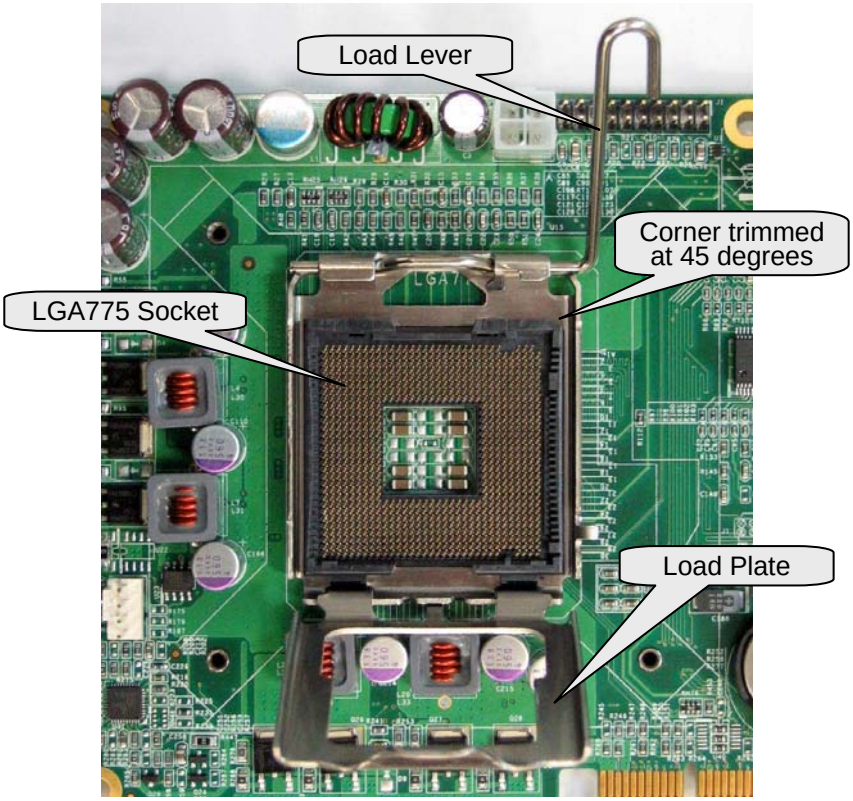

Figure 3-1. LGA775 CPU Socket

3) Verify that package is within the socket body and that the Orientation Keys are properly mated (see Figure 3-2).

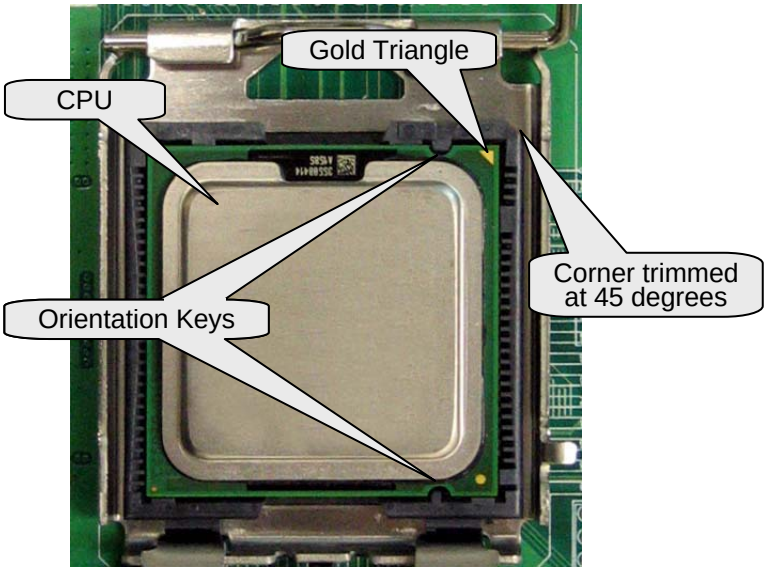

Figure 3-2. CPU Alignment in LGA775 Socket

4) Close the Load Plate. While pressing down lightly on Load Plate, engage the Load Lever. Secure the Load Lever with Load Plate tab under the retention tab of the Load Lever (see Figure 3-3).

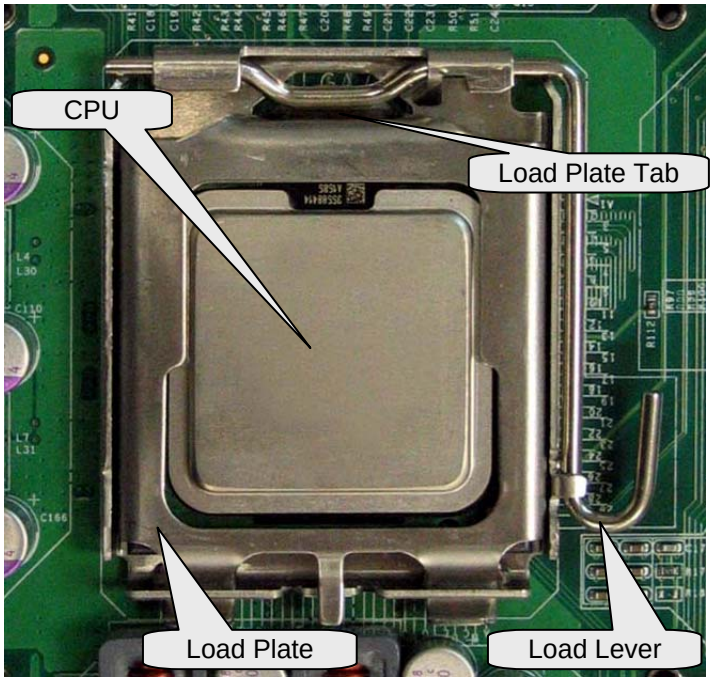

Figure 3-3. CPU Secured in LGA775 Socket

Removing the CPU

To remove the CPU, reverse the installation steps.

1) Before removing the CPU, turn off the system power andwait for about 20 minutes until the heat radiation plate of the cooling fan and the CPU cools down.

2) To remove the CPU, first release the Load Lever of the LGA775 Socket and raise the Load Plate.

3) Remove the CPU by grasping the substrate edges only with thumb and forefinger and lifting it out with a purely vertical motion.

4) Replace the protective cover.

WARNING

The CPU and the heatsink may be hot and could cause burns.

Heatsink Installation

The system must not be operated without a heat sink and fan to provide the necessarily cooling. Install the heat sink and fan supplied by the CPU manufacturer, or other suitable heat sink and fan assembly.

Important: Make sure that good thermal contact is made between the processor and heat sink. Insufficient contact or incorrect use of heat sink, fan, or thermal compound can cause the processor to overheat, which may crash the system or cause permanent damage to the CPU.

Memory Module Installation

Figure 3-3 below displays the notch marks as they should look on your DIMM memory modules.

DIMMs have 184-pins and one notch that will match with the onboard DIMM sockets. DIMM modules are installed by placing the chip firmly into the socket at a 90-degree angle and pressing straight down (Figure 3-4) until it fits tightly into the DIMM socket.

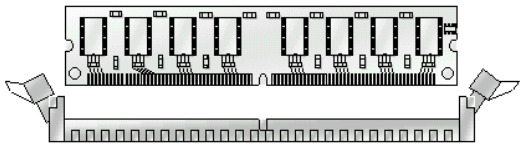

Figure 3-4. DIMM Memory and 184-pin Socket

Installing a DIMM

Carefully follow the steps below in order to install the DIMMs:

1) To avoid generating static electricity and damaging the DIMM, ground yourself by touching a grounded metal surface or using a ground strap before you touch the DIMM.

2) Do not touch the connectors of the DIMM. Dirt or other residue may cause a malfunction.

3) Hold the DIMM with its notch aligned with the memory socket of the PCI-757 and insert it completely into the socket. Lift the locking tabs at each end of the DIMM socket to lock it in position.

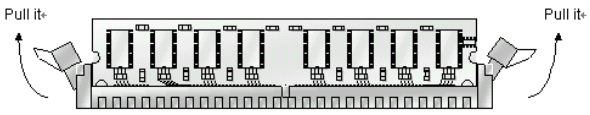

Figure 3-5. Memory Installation

4) If you install two DIMMs, install the second DIMM using the same procedure as above.

5) If the DIMM does not go in smoothly, do not force it. Pull it all the way out and try again.

6) Make sure the DIMM is properly installed and locked by the tabs on both sides of the socket.

Removing a DIMM

To remove the DIMM, use your fingers or a small screwdriver to carefully push away the plastic tabs that secure the DIMM at each end. Lift it out of the socket.

Make sure you store the DIMM in an anti-static bag. The socket must be populated with memory modules of the same size and manufacturer.

Memory Configuration for Dual Channel Mode

In order to achieve Dual Channel mode, use identical memory modules (same brand, capacity, frequency and density) and populate both slots.

If other memory configurations are used, the system may revert to Single Channel mode.

Chapter 4

Award BIOS Setup

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Overview

This chapter provides a generic description of the Award BIOS. The BIOS setup menus and available selections will vary from those of your product. For specific information on the BIOS for your product, please contact Kontron.

Note: The BIOS menus and selections for your product will vary from those in this chapter. For the BIOS manual specific to your product, please contact Kontron.

Award's ROM BIOS provides a built-in Setup program, which allows the user to modify the basic system configuration and hardware parameters. The modified data will be stored in a battery-backed CMOS, so that data will be retained even when the power is turned off. In general, the information saved in the CMOS RAM will not need to be changed unless there is a configuration change in the system, such as a hard drive replacement or when a device is added.

It is possible for the CMOS battery to fail, which will cause data loss in the CMOS only. If this happens you will need to reconfigure your BIOS settings.

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Main Menu

Once you enter the AwardBIOS™ CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and two exit choices. Use the arrow keys to select among the items and press <Enter> to accept your choice and enter the sub-menu.

Phoenix - AwardBIOS CMOS Setup Utility

➢Standard CMOS Features ➢Advanced BIOS Features ➢Advanced Chipset Features ➢Integrated Peripherals ➢Power Management Setups ➢PnP/PCI Configurations ➢PC Health Status	➢Frequency/Voltage Control Load Fail-Safe Defaults Load Optimized Defaults Set Supervisor Password Set User Password Save & Exit Setup Exit Without Saving
Esc: Quit **F10**: Save & Exit Setup	↑↓→←: Select Item
Time, Date, Hard Disk Type….	

Table 4-1. Main Menu

Note: A brief description of each highlighted selection appears at the bottom of the screen.

Setup Items:

The main menu includes the following main setup categories. Recall that some systems may not include all entries. Each category is described in detail in the sections which follow.

Standard CMOS Features:

Use this menu for basic system configuration.

Advanced BIOS Features:

Use this menu to set the Advanced Features available on your system.

Advanced Chipset Features:

Use this menu to change the values in the chipset registers and optimize your system's performance.

Integrated Peripherals:

Use this menu to specify your settings for integrated peripherals.

Power Management Setup:

Use this menu to specify your settings for power management.

- **PnP / PCI Configuration:**

  This entry appears if your system supports PnP / PCI.

- **PC Health Status:**

  This menu displays the current CPU temperature, the fan speeds, voltages etc.

- **Load Failsafe Defaults:**

  Use this menu to load the BIOS default values for the minimal/stable performance required for your system to operate.

- **Load Optimized Defaults:**

  Use this menu to load the BIOS default values that are factory settings for optimal performance and system operations. While Award has designed the custom BIOS to maximize performance, the factory has the right to change these defaults to meet their needs.

- **Supervisor / User Password::**

  Use this menu to set User and Supervisor Passwords.

- **Save & Exit Setup:**

  Save CMOS value changes to CMOS and exit setup.

- **Exit Without Save:**

  Abandon all CMOS value changes and exit setup.

Standard CMOS Features

The items in the Standard CMOS Setup Menu are divided into 10 categories. Each category includes no, one or more setup items. Use the arrow keys to highlight the item and <PgUp> or <PgDn> keys to select the value you want for each item. Note the "Halt On" option which allows you to select the situation in which you want the BIOS to stop the POST process and notify you.

Standard CMOS Features

Date (mm:dd:yy):	Mon, Mar 6 2006	Item Help
Time (hh:mm:ss):	16:19:20	
➢ IDE Channel 0 Master	[13579 MB]	Menu Level ➢
➢ IDE Channel 0 Slave	[None]	
➢ IDE Channel 1 Master	[None]	Change the day, month, year and century
➢ IDE Channel 1 Slave	[None]	
Drive A	[1.44M, 3.5 in.]	
Video	[EGA/VGA]	
Halt On	[All Errors]	
Based Memory	640K	
Extended Memory	515072K	
Total Memory	516096K	

↑↓→←Move **Enter**: Select **+/-/PU/PD**: Value **F10**: Save **ESC**: Exit **F1**: General Help
F5: Previous Values **F6**: Fail-safe defaults **F7**: Optimized Defaults

Table 4-2. Standard CMOS Features

Date:

Options- Month/DD/YYYY

Set the system date. Note that the 'Day' automatically changes when you set the date.

Time:

Options- HH : MM : SS

Set the system time.

IDE Channel 0/1 Master:

Options are available in the sub-menu (described in the IDE Adapters section below)

Press <Enter> to enter the sub-menu and select detailed options.

IDE Channel 0/1 Slave:

Options are available in the sub-menu (described in the IDE Adapters section below)

Press <Enter> to enter the sub-menu and select detailed options.

- **Drive A/ Drive B:**

  Options- None/360K, 5.25 in/1.2M, 5.25 in/720K, 3.5 in/1.44M, 3.5 in/2.88M, 3.5 in

  Select the type of floppy disk drive installed in your system.

- **Video:**

  Options- EGA/VGA/CGA 40/CGA 80/MONO

  Select the default video device.

- **Halt On:**

  Options- All Errors/No Errors/All, but Keyboard/All, but Diskette/All, but Disk/Key

  Select the situation in which you want the BIOS to stop the POST process and notify you.

- **Base Memory:**

  Options- N/A

  Displays the amount of conventional memory detected during boot.

- **Extended Memory:**

  Options- N/A

  Displays the amount of extended memory detected during boot.

- **Total Memory:**

  Options- N/A

  Displays the total memory available on the system.

IDE Adapters

The IDE adapters control the hard disk drive. Use a separate sub-menu to configure each hard disk drive.

Phoenix - AwardBIOS CMOS Setup Utility
IDE Channel 0 Master

IDE HDD Auto-Detection	Press Enter	Item Help
IDE Channel 0 Master	Auto	
Access Mode	Auto	Menu Level ➢➢
Capacity	13579 MB	To auto-detect the HDD's size, head... on this channel
Cylinder	26310	
Head	16	
Precomp	0	
Landing Zone	26309	
Sector	63	

↑↓→←Move **Enter**: Select **+/-/PU/PD**: Value **F10**: Save **ESC**: Exit **F1**: General Help
F5: Previous Values **F6**: Fail-safe defaults **F7**: Optimized Defaults

Table 4-3. IDE Primary Master

IDE HDD Auto-Detection:

Options- Press Enter

Press Enter to auto-detect the HDD on this channel. If detection is successful, the utility will fill the remaining fields on this menu.

IDE Primary Master:

Options- None, Auto and Manual

Selecting "Manual" lets you set the remaining fields on this screen. Selects the type of fixed disk. "User Type" will let you select the number of cylinders, heads, etc. Note: PRECOMP=65535 means NONE!

Access Mode:

Options- CHS, LBA, Large and Auto

Choose the access mode for this hard disk

Capacity:

Options- Auto Display your disk drive size

Disk drive capacity (approximate). Note that this size is usually slightly greater than the size of a formatted disk given by a disk-checking program.

***The following options are selectable only if the 'IDE Primary Master' item is set to 'Manual'**

- **Cylinder:**

  Options- Min = 0, Max = 65535

  Set the number of cylinders for this hard disk.

- **Head:**

  Options- Min = 0, Max = 255

  Set the number of read/write heads.

- **Precomp:**

  Options- Min = 0, Max = 65535

  **** Warning: Setting a value of 65535 means no hard disk!

- **Landing zone:**

  Options- Min = 0, Max = 65535

- **Sector:**

  Options- Min = 0, Max = 255

  Number of sectors per track

Advanced BIOS Features

This section allows you to configure your system for basic operation. You have the opportunity to select the system's default speed, boot-up sequence, keyboard operation, shadowing and security.

Phoenix - AwardBIOS CMOS Setup Utility
Advanced BIOS Features

➢ CPU Feature	[Press Enter]	Item Help
➢ Hard Disk Boot Priority	[Press Enter]	
CPU L1 & L2 Cache	[Enabled]	Menu Level ➢
Hyper-Threading Technology	[Enabled]	
Quick Power On Self Test	[Enabled]	
First Boot Device	[Floppy]	
Second Boot Device	[Hard Disk]	
Third Boot Device	[LS120]	
Boot Other Device	[Enabled]	
Boot Up NumLock Status	[On]	
Gate A20 Option	[Fast]	
Security Option	[Setup]	
APIC Mode	[Enabled]	
MPS Version Control For OS	[1.4]	
Summary Screen Show	[Enabled]	

↑↓→←Move **Enter**: Select **+/-/PU/PD**: Value **F10**: Save **ESC**: Exit **F1**: General Help
F5: Previous Values **F6**: Fail-safe defaults **F7**: Optimized Defaults

Table 4-4. Advanced BIOS Features

CPU Features

Phoenix - AwardBIOS CMOS Setup Utility
CPU Feature

Delay Prior to Thermal	[16 Min]	Item Help
x Thermal Management	Thermal Monitor 1	
Limit CPUID MaxVal	[Disabled]	Menu Level ➢
C1E Function	[Auto]	
Execute Disable Bit	[Enabled]	

↑↓→←Move **Enter**: Select **+/-/PU/PD**: Value **F10**: Save **ESC**: Exit **F1**: General Help
F5: Previous Values **F6**: Fail-safe defaults **F7**: Optimized Defaults

Table 4-5. CPU Features

- **Delay Prior to Thermal:**

  Selecting this item allows a delay prior to thermal time.

  Options- 4Min, 8Min, 16Min and 32Min.

- **Thermal Management:**

  Allows you to select the Thermal monitor.

  Option- Thermal monitor1, Thermal Monitor 2

- **TM2 Bus Ratio:**

  This item sets the frequency (bus ratio) of the throttled performance that will be initiated when the on die sensor goes from not hot to hot.

  Settings- Min = 0, Max = 255

- **TM2 Bus VID:**

  This item sets the voltage of the throttled performance that will be initiated when the on die sensor goes from not hot to hot.

  Settings- Min = 0.700V, Max = 1.708V (default: 0.8375V)

- **Limit CPUID MaxVal:**

  The Limit CPUID MaxVal item should be set to "Disabled" for Windows XP, and enabled for earlier versions of Windows.

- **C1E Function:**

  Allows you to enable or disable the Enhanced Halt State (C1E) function of the CPU.

- **Execute Disable Bit:**

  Allows you to enable or disable Intel's Execute Disable Bit (XD) functionality which can prevent certain classes of malicious buffer overflow attacks when combined with a supporting operating system.

- **Virtualization Technology:**

  Press Enter to show the Bootable add-in Card.

- *Hard Disk Boot Priority:*

  Press *Enter* to show the Boot Priority and Bootable add-in Card selections.

- **CPU L1& L2 Cache:**

  This function controls the status of the CPUís internal Level 1 and Level 2 cache, and may speed up memory access, depending on the CPU/chipset design (default: Enabled).

  Options- Enabled, Disabled

- **Hyper-Threading Technology:**

  Enables the CPUís Hyper-Threading Technology (default: Enabled).

  Options- Enabled, Disabled.

- **Quick Power On Self Test:**

  This option speeds up the Power On Self Test (POST) which runs when you power up the computer. If it is set to Enabled, BIOS will shorten or skip some check items during POST.

  Enabled- Enable quick POST; Disabled- Normal POST

- **First/Second/Third Boot Device:**

  The BIOS will attempt to load the operating system from the devices specified here as the first, second and third boot devices.

  Options-Floppy, LS120, Hard Disk, CDROM, ZIP100, USB-FDD, USB-ZIP, USB-CDROM, LAN, and Disabled

- **Boot Other Device:**

  When enabled, the system will search all other possible locations for an operating system if it fails to find one in the devices specified under the first, second, and third boot devices.

  Options- Enabled, Disabled

- **Boot Up NumLock Status:**

  Select the powe- on state for NumLock.

  Options- On, Off

- **Gate A20 Option:**

  Select if the chipset or the keyboard controller should control GateA20.

  Normal- A pin in the keyboard controller controls GateA20; Fast- Lets the chipset control GateA20

➤ **Security Option:**

Select whether a password is required every time the system boots or only when you enter setup.

- System---The system will not boot and access to Setup will be denied if the correct password is not entered at the prompt.
- Setup---The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.

Note: To disable security, select PASSWORD SETTING at the Main Menu. You will be asked to enter password. Do not type anything and just press <Enter> to disable security. Once security is disabled, the system will boot and you can enter Setup freely.

➤ **APIC Mode:**

APIC mode (Advanced Programmable Interrupt Controller) is a BIOS setting made available to Windows 2000 and Windows XP systems that increases the number of IRQ (Interrupt Request) lines available to the processor.

Options- Enabled, Disabled

➤ **MPS Version Control For OS:**

This option is specifies the MPS (Multiprocessor Specification) version for your operating system. MPS version 1.4 added extended configuration tables to improve support for multiple PCI bus configurations and improve future expandability.

Options- 1.4, 1.1

➤ **Summary Screen Show:**

Show summary screen.

Options- Enabled, Disabled

Advanced Chipset Features

This section allows you to configure the system based on the specific features of the installed chipset. This chipset manages bus speeds and access to system memory resources, such as DRAM and the external cache. It also coordinates communications between the conventional ISA bus and the PCI bus. Please note that these items should never need to be altered. The default settings have been chosen because they provide the best operating conditions for your system. The only time you might consider making any changes would be if you discovered that data was being lost while using your system.

Phoenix - AwardBIOS CMOS Setup Utility
Advanced Chipset Features

DRAM Timing Selectable	[By SPD]	Item Help
x CAS Latency Time	[2]	
x Active to Precharge Delay	[8]	Menu Level ➢
x DRAM RAS# To CAS# Delay	[4]	
x DRAM RAS# Precharge	[4]	
Memory Frequency For	[Auto]	
System BIOS Cacheable	[Enabled]	
Video BIOS Cacheable	[Disabled]	
AGP Aperture Size (MB)	[128]	
** VGA Setting **		
On-Chip Frame Buffer Size	[PCI Slot]	
On-Chip VGA	[Enabled]	
On-Chip Frame Buffer Size	[8MB]	

↑↓→←Move **Enter**: Select **+/-/PU/PD**: Value **F10**: Save **ESC**: Exit **F1**: General Help
F5: Previous Values **F6**: Fail-safe defaults **F7**: Optimized Defaults

Table 4-6. Advanced Chipset Features

DRAM Timing Selectable:

This selection provides the option to select DRAM timing detection using Serial Presence Detect (SPD) or by manually setting it.

Options- Manual, By SPD.

CAS Latency Time:

When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing.

Options- 2, 2.5, 3

Active to Precharge Delay:

Sets the length of time a row in the memory module stays active before precharging.

Options- 5, 6, 7, 8, Auto

➤ **DRAM RAS# To CAS# Delay:**

This option allows you to insert a timing delay between the CAS and RAS strobe signals, used when DRAM is written to, read from, or refreshed. Fast gives faster performance; and Slow gives more stable performance. This option applies only when synchronous DRAM is installed in the system.

Options- 2, 3, 4

➤ **DRAM RAS# Precharge:**

If an insufficient number of cycles are allowed for the RAS to accumulate its charge before DRAM refresh, the refresh may be incomplete and the DRAM may fail to retain data. Fast gives faster performance; and Slow gives more stable performance. This option applies only when synchronous DRAM is installed in the system.

Options- 2, 3, 4

➤ **Memory Frequency For:**

This item allows you to set the system memory frequency.

Options- DDR266, DDR320/333, DDR400, Auto

➤ **System BIOS Cacheable:**

Enables/disables caching of System BIOS code from RAM.

Options- Enabled, Disabled.

➤ **Video BIOS Cacheable:**

Enables/disables caching of Video BIOS code from RAM.

Options- Enabled, Disabled.

➤ **AGP Aperture Size (MB):**

This setting controls how much memory space can be allocated to AGP for video purposes. The aperture is a portion of the PCI memory address range dedicated to graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation.

Settings: [4, 8, 16, 32, 64, 128, 256]

On-Chip VGA Setting

Init Display First:

Specifies the initial display adapter.

Options- PCI Slot, Onboard

On-Chip VGA:

Enables/disables the chipset-integrated VGA.

Options- Enabled, Disabled

On-Chip Frame Buffer Size:

This item allows you to control the on-chip frame buffer size.

Options- 1M, 8M, 16M

Integrated Peripherals

Phoenix - AwardBIOS CMOS Setup Utility
Integrated Peripherals

➢ OnChip IDE Device	[Press Enter]	Item Help
➢ Onboard Device	[Press Enter]	
➢ SuperIO Device	[Press Enter]	Menu Level ➢

↑↓→←Move **Enter**: Select **+/-/PU/PD**: Value **F10**: Save **ESC**: Exit **F1**: General Help
F5: Previous Values **F6**: Fail-safe defaults **F7**: Optimized Defaults

Table 4-7. Integrated Peripherals

OnChip IDE Device

OnChip IDE Device

IDE HDD Block Mode	[Enabled]	Item Help
On-Chip Primary PCI IDE	[Enabled]	
IDE Primary Master PIO	[Auto]	Menu Level ➢
IDE Primary Slave PIO	[Auto]	
IDE Primary Master UDMA	[Auto]	If your IDE hard drive supports block mode select Enabled for automatic detection of the optimal number of block read/write per sector the drive can support
IDE Primary Slave UDMA	[Auto]	
On-Chip Secondary PCI IDE	[Enabled]	
IDE Secondary Master PIO	[Auto]	
IDE Secondary Slave PIO	[Auto]	
IDE Secondary Master UDMA	[Auto]	
IDE Secondary Slave UDMA	[Auto]	
** On-Chip Serial ATA Setting **		
SATA Mode	IDE	
On-Chip Serial ATA	[Auto]	
Serial ATA Port0 Mode	[Primary Master]	
Serial ATA Port1 Mode	Primary Master	

↑↓→←Move **Enter**: Select **+/-/PU/PD**: Value **F10**: Save **ESC**: Exit **F1**: General Help
F5: Previous Values **F6**: Fail-safe defaults **F7**: Optimized Defaults

Table 4-8. OnChip IDE Device

➤ **IDE HDD Block Mode:**

Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support.

Options- Enabled, Disabled

➤ **OnChip Primary/Secondary PCI IDE:**

The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select "Enabled" to activate each channel separately.

Options- Enabled, Disabled

➤ **IDE Primary/Secondary Master/Slave PIO:**

The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.

Options- Auto, Mode 0, Mode 1, Mode 2, Mode 3 and Mode 4

➤ **IDE Primary/Secondary Master/Slave UDMA:**

Ultra DMA/33 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If your hard drive and your system software both support Ultra DMA/33, select "Auto" to enable BIOS support.

Options- Auto, Disabled

➤ **SATA Mode:**

Selects IDE or RAID mode for Serial ATA.

Options- IDE, RAID

➤ **On-Chip Serial ATA:**

Available options:

- **Disabled:** The SATA Controller is disabled
- **Combined Mode**: PATA and SATA are combined - max. 2 IDE drives per channel
- **Enhanced Mode:** Both SATA and PATA are enabled - max. 6 IDE drives are supported
- **SATA Only:** SATA is operated in legacy mode (PATA disabled)
- **Auto:** Auto-detect Combined Mode or Enhanced Mode

Onboard Device

Onboard Device

USB Controller	[Enabled]	Item Help
USB 2.0 Controller	[Enabled]	
USB Keyboard Support	[Disabled]	Menu Level ➢
USB Mouse Support	[Disabled]	
Onboard Audio	[Enabled]	
Onboard LAN1	[Enabled]	
Onboard LAN2	[Enabled]	

↑↓→←Move **Enter**: Select **+/-/PU/PD**: Value **F10**: Save **ESC**: Exit **F1**: General Help
F5: Previous Values **F6**: Fail-safe defaults **F7**: Optimized Defaults

Table 4-9. Onboard Device

USB / USB 2.0 Controller:

Select "Enabled" if your system contains a Universal Serial Bus (USB) / USB 2.0 controller and you have USB peripherals.

Options- Enabled, Disabled

USB Keyboard Support:

Select "Enabled" if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard.

Options- Enabled, Disabled

USB Mouse Support:

Select "Enabled" if your system contains a Universal Serial Bus (USB) controller and you have a USB mouse.

Options- Enabled, Disabled

Onboard Audio:

This item allows you to enable/disable the chipset to support ACí97 Audio.

Options- Enabled, Disabled

Onboard LAN1/2:

This item allows you to enable/disable the Onboard LAN.

SuperIO Device

SuperIO Device

Onboard FDC Controller	[Enabled]	Item Help
Onboard Serial Port 1	[3F8/IRQ4]	
Onboard Serial Port 2	[2F8/IRQ3]	Menu Level ➢
UART2 Transmission Type	[RS-232]	
Onboard Parallel Port	[378/IRQ7]	
Parallel Port Mode	[SPP]	
x ECP Mode Select	[EPP1.7]	
x ECP Mode Use DMA	3	

↑↓→←Move **Enter**: Select **+/-/PU/PD**: Value **F10**: Save **ESC**: Exit **F1**: General Help
F5: Previous Values **F6**: Fail-safe defaults **F7**: Optimized Defaults

Table 4-10. SuperIO Device

Onboard FDC Controller:

Select "Enabled" if your system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If you have installed an add-in FDC or the system has no floppy drive, select Disabled.

Options- Enabled, Disabled

Onboard Serial Port 1/Port 2:

Select an address and corresponding interrupt for the first and second serial ports.

Options- 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled and Auto

UART2 Transmission Type:

This item allows you to select the transmission type for COM2.

Options- RS-232, RS-422, RS-485

Onboard Parallel Port:

This item allows you to determine which access onboard parallel port controller goes with which I/O address.

Options- 3BC/IRQ7, 378/IRQ7, 278/IRQ5 and Disabled

Parallel Port Mode:

Select an operating mode for the onboard parallel (printer) port. Select Normal, Compatible, or SPP unless you are certain your hardware and software both support one of the other available modes.

Options- SPP, EPP, ECP and ECP+EPP

- **ECP Mode Select:**

  Select the ECP mode.

  Options- 1.7, 1.9

- **ECP Mode Use DMA:**

  Select a DMA channel for the parallel port for use during ECP mode.

  Options- 3, 1

Power Management Setup

The Power Management Setup allows you to configure your system to most effectively save energy while operating in a manner consistent with your own style of computer use.

Phoenix - AwardBIOS CMOS Setup Utility
Power Management Setup

ACPI Function	[Enabled]	Item Help
Power Management	[User Define]	
Video Off Method	[DPMS]	Menu Level ➢
Video Off In Suspend	[Yes]	
Suspend Type	[Stop Grant]	
Suspend Mode	[Disabled]	
HDD Power Down	[Disabled]	
Soft-Off by PWR-BTTN	[Instant-Off]	
PWRON After PWR-Fail	[Off]	
CPU THRM-Throttling	[50.0%]	
Power On by Ring	[Enabled]	
Wake Up On LAN	[Enabled]	
Resume by Alarm	[Disabled]	
x Date(or Month) Alarm	0	
x Time(hh:mm:ss) Alarm	0 : 0 : 0	

↑↓→←Move **Enter**: Select **+/-/PU/PD**: Value **F10**: Save **ESC**: Exit **F1**: General Help
F5: Previous Values **F6**: Fail-safe defaults **F7**: Optimized Defaults

Table 4-11. Power Management Setup

➢ **ACPI Function:**

This item allows you to enable or disable the Advanced Configuration and Power Management(ACI).

Options- Enabled, Disabled.

➢ **Power Management:**

This item allows you to select the type (or degree) of power saving and is directly related to the following modes: *HDD Power Down* and *Suspend Mode*.

Options:

Min. Power Saving: Minimum power management. Suspend Mode = 1 hr. and HDD Power Down = 15 min.

Max. Power Saving: Maximum power management. Suspend Mode = 1 min. and HDD Power Down = 1 min.

User Defined: Allows you to set each mode individually. When not disabled, each of the ranges is from 1 min. to 1 hr. except for HDD Power Down, which ranges from 1 min. to 15 min. and disabled.

➤ **Video Off Method:**

This determines the manner in which the monitor is blanked.

- **Blank Screen:** This option only writes blanks to the video buffer.
- **V/H SYNC+Blank:** This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
- **DPMS:** Initial display power management signaling.

➤ **Video Off In Suspend:**

This field is used to activate the video off feature when the system enters the Suspend mode.

Options- Yes, No.

➤ **Suspend Type:**

The default setting for the Suspend Type field is Stop Grant.

- **Stop Grant**: The system can wake up through external events.
- **PwrOn Suspend**: The system can only wake up through the Power-Button.

➤ **Suspend Mode:**

When "Enabled" and a set time of system inactivity has elapsed, all devices except the CPU will be shut down.

Options- Disabled, 1 Min, 2 Min, 4 Min, 8 Min, 12 Min, 20 Min, 30 Min, 40 Min, 1 Hour

➤ **HDD Power Down:**

When "Enabled" and a set time of system inactivity has elapsed, the hard disk drive will be powered down while all other devices remain active.

Options- Disabled, 1 Min, 2 Min, 3 Min, 4 Min, 5 Min, 6 Min, 7 Min, 8 Min, 9 Min, 10 Min, 11 Min, 12 Min, 13 Min, 14 Min, 15 Min

➤ **Soft-Off by PWR-BTTN:**

Configures the power button function:

- **Instant-Off:** The power button functions as a normal power-on/-off button.
- **Delay 4 Sec:** The system is turned off if the power button is pressed for more than four seconds.

➤ **PWRON After PWR-Fail:**

This item allows you to select if you want to power on the system after power failure.

- **On:** The system will switch on when power comes back after a power failure.
- **Off:** The system will remain off when power comes back after a power failure.
- **Former-Sts:** The system will return to the state it was in before the power failure when power returns (i.e. If the system was on, it will switch on again, if it was off, it will remain off).

- **CPU THRM-Throttling:**

  When processor's temperature exceeds the limit setting of processor, the CPU clock will run only part of the time according to this item's setting. You may select the percent of time that the clock runs.

- **Power On by Ring:**

  An input signal on the serial Ring Indicator (RI) line (i.e. an incoming call on the modem) awakens the system from a soft off state.

  Options- Enabled, Disabled.

- **Wake on LAN:**

  This field allows the system to wake up from a signal received through the LAN port.

  Options- Enabled, Disabled.

- **Resume by Alarm:**

  When “Enabled”, you can set the date and time at which the RTC (real-time clock) alarm awakens the system from Suspend mode.

  Options- Enabled, Disabled.

- **Date (or Month) Alarm:**

  Select a date in the month when you want the alarm to go off.

- **Time (hh:mm:ss) Alarm:**

  Set the time you want the alarm to go off

PnP/PCI Configurations

This section describes the configuration of the PCI bus system. PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components. This section covers some very technical items and it is strongly recommended that only experienced users make any changes to the default settings.

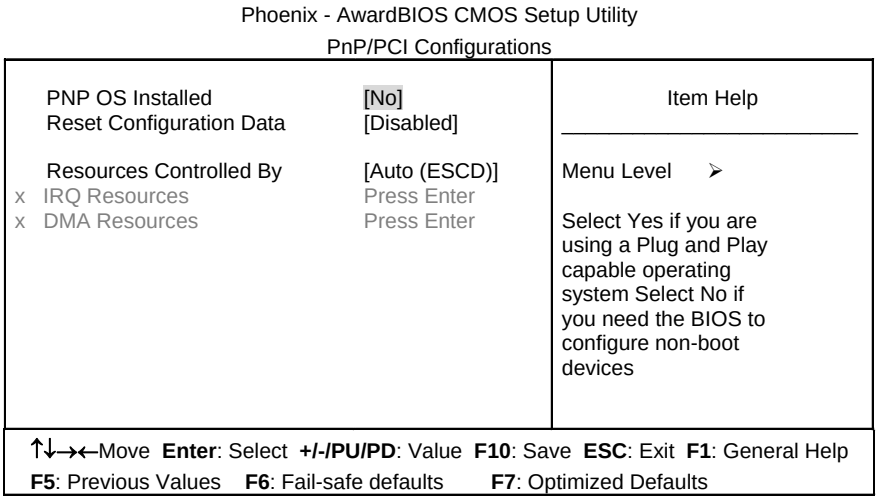
Phoenix - AwardBIOS CMOS Setup Utility
PnP/PCI Configurations
PNP OS Installed [No]
Reset Configuration Data [Disabled]
Resources Controlled By [Auto (ESCD)]
x IRQ Resources Press Enter
x DMA Resources Press Enter
Item Help
Menu Level ➢
Select Yes if you are using a Plug and Play capable operating system Select No if you need the BIOS to configure non-boot devices
↑↓→←Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-safe defaults F7: Optimized Defaults

Table 4-12. PnP/PCI Configurations

PNP OS Installed:

If your operating system supports Plug & Play (PnP), select Yes so that it can take over the management of device resources. If you are using a non-PnP-aware OS, select No to let the BIOS handle it instead.

Reset Configuration Data:

Normally, you leave this field Disabled. Select "Enabled" to reset the Extended System Configuration Data (ESCD) when you exit Setup and you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system cannot boot.

Options- Enabled, Disabled.

Resources Controlled By:

This item allows you to automatically configure all the boot- and Plug and Play-compatible devices. If you select Auto, all the interrupt request (IRQ) and DMA assignment fields are cleared, as the BIOS automatically assigns them.

PC Health Status

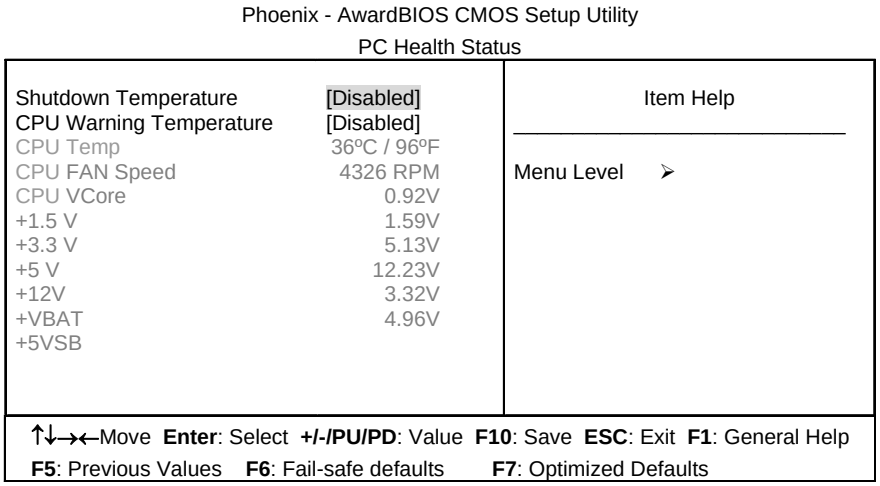
Phoenix - AwardBIOS CMOS Setup Utility
PC Health Status
Shutdown Temperature [Disabled]
CPU Warning Temperature [Disabled]
CPU Temp 36ºC / 96ºF
CPU FAN Speed 4326 RPM
CPU VCore 0.92V
+1.5 V 1.59V
+3.3 V 5.13V
+5 V 12.23V
+12V 3.32V
+VBAT 4.96V
+5VSB
Item Help
Menu Level ➢
↑↓→←Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-safe defaults F7: Optimized Defaults

Table 4-13. PC Health Status

- **Shutdown Temperature:**

  This item allows you to set up the CPU shutdown Temperature.

  Options- Disabled, 60°C / 140°F, 65°C / 149°F, 70°C / 159°F and 75°C / 167°F.

- **CPU Warning Temperature:**

  This item allows you to set up the CPU Warning Temperature.

  Options- Disabled, 50°C / 122°F, 53°C / 127°F, 56°C / 133°F, 60°C / 140°F, 63°C / 145°F, 66°C / 151°F, 70°C / 158°F.

- **CPU Temp, CPU FAN Speed, CPU VCore, +1.5V, +3.3V, +5V, +12V, +VBAT, +5VSB:**

  Displays the values of CPU Temp, CPU FAN Speed, CPU VCore, +1.5V, +3.3V, +5V, +12V, +VBAT, +5VSB.

Frequency/Voltage Control

Phoenix - AwardBIOS CMOS Setup Utility
Frequency/Voltage Control

CPU Clock Ratio	[8 X]	Item Help
Auto Detect PCI CLK	[Enabled]	
Spread Spectrum	[Disabled]	Menu Level ➢

↑↓→←Move **Enter**: Select **+/-/PU/PD**: Value **F10**: Save **ESC**: Exit **F1**: General Help
F5: Previous Values **F6**: Fail-safe defaults **F7**: Optimized Defaults

Table 4-14. Frequency/Voltage Control

CPU Clock Ratio:

This field is used to set the CPUís frequency ratio. By default, the CPU Clock Ratio, is set to 8X.

Auto Detect PCI CLK:

When "Enabled", this item will auto detect if the PCI slot has any devices and will send the clock signal to the PCI devices. When disabled, it will send the clock signal to the PCI slot.

Options- Enabled, Disabled.

Spread Spectrum Modulated:

This item allows you to enable or disable the Spread Spectrum Modulated. Leave this field in its default setting. Do not alter this setting unless advised by an engineer or technician.

Options- Disabled, +/- 0.35 %, +/- 0.50 %, +/- 0.75 %, +/- 1.00 %

Load Fail-Safe Defaults

When you press <Enter> on this item you get a confirmation dialog box with a message similar to:

Load Fail-Safe Defaults (Y/N)? N

Pressing 'Y' loads the BIOS default values for the most stable, minimal-performance system operation.

Load Optimized Defaults

When you press <Enter> on this item you get a confirmation dialog box with a message similar to:

Load Optimized Defaults (Y/N)? N

Pressing 'Y' loads the default values which are the factory settings for optimal-performance system operation.

Supervisor/User Password Setting

You can set either the supervisor or the user password, or both. The differences between them are:

Supervisor: is allowed to enter Setup and change the options.

User: is allowed to enter Setup but not to change the options.

When you select either function, the following message will appear at the center of the screen to assist you in creating a password.

ENTER PASSWORD:

Type the new password, up to eight characters in length, and press <Enter>. The new password will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the change.

To disable a password, just press <Enter> when you are prompted to enter the password. A message will confirm that password protection will be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

PASSWORD DISABLED.

When a password has been enabled, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration. Additionally, when you have enabled a

password, you can also require the BIOS to request the password every time your system is rebooted. This would prevent unauthorized use of your computer.

You can determine when the password is requested in the BIOS Features Setup Menu and its Security option (see above). If the Security option is set to "System", a password will be required both at boot and on entry into Setup. If set to "Setup", a password is required only when trying to enter Setup.

Exit Selection

Save & Exit Setup

Pressing <Enter> on this item asks for confirmation:

Save to CMOS and EXIT (Y/N)? Y

Pressing "Y" stores the selections you made in CMOS - a special section of memory that stays on after you turn your system off. The next time you boot your computer, the BIOS configures your system according to the Setup selections stored in CMOS. After saving the values, the system is restarted.

Exit Without Saving

Pressing <Enter> on this item asks for confirmation:

Quit without saving (Y/N)? Y

This allows you to exit Setup without storing any changes in CMOS. The previous selections remain in effect. This exits the Setup utility and restarts your computer.

Chapter 5

Driver Installation

Contents

Overview 5-3
Chipset Driver Installation 5-3
Graphics Driver Installation 5-3
LAN Driver Installation 5-3

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Overview

This chapter provides information on installing the necessary drivers for the PCI-757. The following sections describe driver installation procedures for Windows operating systems. Download the drivers from the Kontron website at *http://apac.kontron.com/index.php?id=226&cat=950&productid=1758* and install them in the order they are listed below. For other operating systems, please contact Kontron.

Chipset Driver Installation

To install the Intel® 865G chipset drviers, run the file "*infinst_autol.exe*", located in the folder **ICH Driver**. When asked to reboot the system, click "yes".

Graphics Driver Installation

After installing the chipset driver, select the correct graphics driver for your operating system and install by running the appropriate file, located in the folder**Intel 865G Graphics**. After installation is complete, reboot the system.

LAN Driver Installation

Install the **LAN Driver**, run the file "Autorun.exe", located in the folder **PRO2KXP 10.2**. Select "Install Drivers", and follow the instructions given.

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Appendix A

System Resources

Contents

Interrupt Request (IRQ) Lines A-3
DMA Channels A-3
Memory Mapping A-4
I/O Address Map A-4
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Inter-IC Bus (I2C) A-5

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Interrupt Request (IRQ) Lines

IRQ #	Used For	Comment
0	Timer0	
1	Keyboard Controller	
2	Cascade	
3	COM2	Note (1)
4	COM1	Note (1)
5	Sound	Note (1)
6	Floppy Disk Controller	Note (1)
7	LPT1	Note (1)
8	Real Time Clock	
9	free	
10	free	
11	free	
12	PS/2 Mouse	Note (1)
13	Floating Point Unit (FPU/NPU/Math coprocessor)	
14	Primary IDE Channel	Note (1)
15	SATA channel	Note (1)

Table A-1. IRQ Assignments

Note: If the "Used For" device is disabled in setup, the corresponding interrupt is available for other devices.

DMA Channels

DMA #	Used for	Comment
0	Memory Refresh	
1	Sound	Note (1)
2	Floppy disk controller	Note (1)
3	free	Unavailable if LPT used in ECP mode.
4	Cascade	
5	Sound	Note (1)
6	free	
7	free	

Table A-2. DMA Assignments

Note: If the "Used For" device is disabled in setup, the corresponding interrupt is available for other devices.

Memory Mapping

Upper Memory	Used for	Available
C0000h - CBFFFh	VGA BIOS	No
CC000h - CFFFFh	OHCI Open Registers	Yes
CC000h - CFFFFh CD000h - CDFFFh	LAN Option ROM	Yes
E0000h - FFFFFh	System BIOS	No

Table A-3. Memory Mapping

Note: If PXE LAN Boot is enabled, USB functionality must be disabled.

I/O Address Map

I/O Address	Used for	Comment
00h – 0Fh C0h – DFh	8237DMA Controller	
20h, 21h	8259A PIC	
2Eh, 2Fh	SuperIO Access Port	
A0h, A1h	8259A PIC	
40h – 43h (XT/AT) 44h – 47h (PS/2)	8254PIT	
60h – 64h	KeyBoard Controller	
90h – 96h	PS/2 P OS	
F0h – FFh	Math Co-Processor, X87 Unit	
170h – 177h	Secondary IDE	
1F0h – 1F7h	Primary IDE	
200h – 22Fh	GAME I/O	
220h – 22Fh	Sound Blaster / AD Lib	
279h, A79h	Plug and Play Configuration Register	
295h, 296h	HW Monitor Access Port	
2F8h – 2FFh	COM2	
378h – 37Ah	Parallel Printer Port	
3B0h – 3BFh	MDA / MGA	
3C0h – 3CFh	EGA / VGA	
3D4h – 3D9h	CGA/CRT Register, Controller and Palette Register	
3F0h – 3F7h	Floppy Diskette	
3F6h, 3F7h	Enhanced IDE	
3F8h – 3FFh	COM1	
0CF8h	PCI Configuration Register/address	
0CFCh	PCI Configuration Register/data	

Table A-4. I/O Address Map

PCI Devices

PCI Device	PCI Interrupt	Comment
Ethernet	INTE	Uses an internal REQ/GNT pair
Slot 1	INTB	AD31
Slot 2	INTC	AD30
Slot 3	INTD	AD29
Slot 4	INTA	AD28
P2I Bridge	-	AD22

Table A-5. PCI Devices

Inter-IC Bus (I^2C)

I2C Address	Used For	Comment
A0h	DDR-RAM DIMM Socket 1 Address	
A2h	DDR-RAM DIMM Socket 2 Address	

Table A-6. Inter-IC Bus (I^2C)